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E. NEWMAN, 9, Devonshire Street, Bishopsgate.

Bird-haunts of the Outer Hebrides.

By THEODORE C. WALKER, Esq.

THE Outer Hebrides or "Long Island," as every one knows, is that group of islands to the west of Skye, extending from the Butt of Lewis to Barra Head. This land, barren, rugged, stormy, ever weeping with the rain from the Atlantic, is nevertheless extremely interesting to the ornithologist, on account of the great diversity of feature. On the west extensive sands and "machirs," or low sand-hills,—in the interior wild and rugged hills, lonely island-dotted lakes and marshes,—on the east extensive lochs of deep water, while the islands to the south of Barra have precipices of great height,—forming one of the most celebrated breeding-places for the rock birds in Britain.

Having for three seasons past "roughed it" in the southern parts of these islands, an account of their avifauna may not prove uninteresting to the readers of the 'Zoologist.' It will be my endeavour, in place of giving a dry list of birds, to carry the reader in thought to the scenes themselves; to try, in word-pictures, to show him glimpses of bird-life in that stormy land. Nature and her spirits, the free birds of the air, have ever been my favourite study; to use the telescope instead of the fowling-piece, and, feasting one's eyes on the loved scenes, to trace the hand of their Maker in their forms and habits.

I crave the kind indulgence of the reader if I take up too much space in describing thoughts and scenes, the remembrance of which are so photographed on one's memory that as I write I am in thought again among the wild hills and lonely shores of the land of my fathers.

> "My heart is true, my heart is highland,
> And in my dreams behold the Hebrides."

On the morning of the 8th of June, having had a comfortable breakfast, my brother and I embarked on board the boat which takes the mails to Barra Head lighthouse. The picturesque bay is animated by the bustle and excitement of the herring season. The herring fishery in the Outer Hebrides commences on the 1st of May, the herring generally appearing in the north of Lewis, and gradually working down the Minch. During May and June every loch and bay of importance, which in winter is barren, desolate, terrible in its solitude, is animated with the herring fishery: the boats come chiefly from the north-east coast, Wick, Inverness, Banff, and many places,

BRITISH 4 MY 70

the sailors building wooden shantees or turf huts, while salting-pans, barrels and casks lie on the beach.

The noble bay, with the picturesque ruins of Kisimul Castle,—the castle of the famous McNeils of Barra,—the herring-boats, brigs and steamers, with the barren archipelago of islands, form a lovely scene—lovely in spite of the raw, chill air, gray and lowering sky, with a subdued and pensive tone, as if Nature were mourning the barrenness of these islands. Not a shrub, not a bush is seen; bare, bleak rock cropping out of scanty grass mottled with stunted heather; naked black rocks peeping up above the seething waves; a sail here and there; and far, far across the Minch, dim as vanished hopes, Skye with its splintered peaks and Rum with its cloud-capped hills.

Casting off from the fish-tainted jetty, we skim past the castle, which is degraded into a fish-curing station, round which quantities of gulls are hovering: the kittiwake is by far the most plentiful; it here takes the place of the common gull, which further north is found in every bay and ford. The herring gull lazily sails overhead, while the lesser blackback is floating a little way off, more wary than the lonely kittiwake, which is hovering round within arm's length, picking up refuse of herring.

The wind is dead a-head, and we shall have a rough passage, for we shall have to take the Atlantic side of the island. At the entrance of the bay we see a small rock completely covered with kittiwakes, sitting gorged after their unclean feast: they mostly roost here at night, not going to the ledges of Barra Head, as these are mostly barren: as we skim past them we observe that several are in various stages of plumage, but the larger portion are in adult plumage.

Slowly beating up the Sound of Vatersay we emerge into the dread Atlantic, on whose huge billows our tiny boat is tossed and tortured. We pass within a stone's throw of Flodday and Lingay, small rocky islets for pasturing sheep: great numbers of arctic terns (*Sterna arctica*) are dancing and flickering over the dull sullen waves, having just arrived at these their breeding stations. Slowly forging past the island of Palla, we sail close to the land, almost on the top of the gigantic billows, which with terrific force dash against the black precipices, thundering into the huge caverns with sullen roar—caverns gloomy, rent, terrible as the mouth of Hades: rock pigeons in numbers dash out, flitting with swift flight along the black rock and over the top of the cliffs.

But see those white patches defiling the black cliff: they are the roosting-places of the shag (*Carbo cristatus*), not so much used in the breeding season, but still frequented by bachelor or barren birds: their nests are in the caverns, and are similar to that patch of yellow wrack in that crevice on which a shag is sitting: the "scarts," as they call the shags, wriggle their heads at us in an uncouth manner, then while some plunge into the seething waves, diving solid as a stone, others fly, with outstretched neck and slowly flapping wings, close over the rolling gloomy waves.

A few puffins are breeding on the banks of turf where the cliffs are not so steep, and in the surging waters the demure little puffins are diving, getting up close under us with evident astonishment. Looking over the boat-side, I can see the puffins flying under the water, using their wings as in the air; their webbed feet seem used for steering—it seems even to use its feet for that purpose when flying, as they are stretched out as far apart as possible, and it even sometimes "kicks out" with them when flying: these are the male birds, the females are mostly sitting in their burrows.

The gloom is thickening: a thin mist is slowly creeping up from the horizon, obscuring and blotting out the islands, like unholy thoughts across the mind, blotting out sweeter visions. Bernera, with its lighthouse on the lofty cliffs of Barra Head, is obscured; the fearful form of Ram Head on Mingalay looms dim and weird through the gathering gloom. Out of the gloom the snow-white gannet skims, whose home is lonely St. Kilda: rising in the air, with the gentlest yet powerful flaps of its black-tipped wings, gracefully swooping down to the tip of the black-green wave, gliding along the trough, lost to our sight as the mountain waves tower over us, up with the speed of thought, without one flap of those beautiful untiring wings, the gannet impresses one with the idea of strength, and lightness, and untiring vigilance: it seems, like the spirit of departed, doomed to haunt the troubled sea. Observe how slowly the gannet flaps its wings, not dipping them down so low as the gulls or herons; the least touch seems to propel the powerful bird and send it skimming along the trough of the wave, then, as it mounts to the top of the wave, altering the angle of its wing, the wind catches it, and light as a feather it is borne aloft, to skim down again untiringly, unceasingly. The gannets are on the look out for the shoals of herring, but as I did not see one of the many skimming the water make a plunge, I presume the shoal was not near the surface. But see that pirate-bird, with sooty back, freckled white breast and streaming tail, swiftly dash out of the gathering gloom and swoop at that gannet! the gannet swerves aside; the pirate almost touches the water, but springing aloft again dashes at the gannet, which again swerves, while the skua sheers off, doubtless seeing that the solan was empty and hungry as itself. I have only once before seen Richardson's skua attack such a large bird as the gannet.

But we have passed Pabba's precipices and are in the Sound of Mingalay, where the billows of the Atlantic, meeting the waves and tide of the Minch, the tide running like a mill-race, the huge waves are humbled, and in rage and despair are leaping, foaming, tumbling and whirling us close under a reef of rocks, on which the waves churn themselves into foam—mad, like a wounded boar. Two pair of great blackbacks rise from their nests, and, conscious of their security, stare at us as our boat is labouring and plunging. Several oystercatchers are running about the rock, and rising and quivering their wings, trilling their shrill whistle in terror for their eggs, while the "scarts" fly blindly around the reef.

Ram Head, hideous in the gloom, is blotted out by the fierce rage of the storm. A yell in Gaelic as Rory and his man spring to the sheet! I grasp the tiller as they tear down the sail: the wind rages and screams round us; the angry waves, seething in the maelstrom of tumult, are white with foam, as the fierce gale strips off their tops, blending salt water and rain, and mist, and sea, and sky, all in gloom. The foam is dashed in our faces, as, encased in waterproofs from head to feet, I clench my teeth and grasp the tiller. All is gloom, one can't see fifty yards a-head; the reef of rocks on which we can hear the roar of the waves, is hidden from sight, and nothing is seen, save when a gull seems to whirl past and vanishes in the gloom.

Rory says it is impossible to reach Barra Head to-day, as wind and tide are against us, and as we have manfully battled with wind and tide for six long cold hours, we are unwilling to turn back. Rory says he can land us on Mingalay: there are two men there who can speak English, and we can get shelter, and cross over the Sound of Bernera to Barra Head to-morrow if the weather moderates: we clutch at this forlorn hope, and

"Swift as a gull before the breeze,
Before the gale bound we."

A quarter of an hour's cold wet sail, with the salt foam in our faces—an indistinct black mass rises, seemingly pressed down by the weight of clouds: it is the beetling cliffs of Mingalay, with the low clouds careering along their sides, hiding their tops. A white gleam of sand in a sheltered nook, on which the ground-swell is heavily breaking, a few battered boats drawn up, a black amphitheatre of hills, and we catch a dim outline of a group of huts as we sail past. Into a sheltered cove Rory glides, and as the boat is lifted on the wave we spring out, catching and dragging out our gun-cases and *impedimenta.* A parting cheer to Rory, as his boat is lost in the gloom, and here are we on a barren island, on which no strangers have landed for more than a year.

Wet and giddy we stagger along the track to the huts, and getting the schoolmaster as interpreter, we are soon lodged in the chief hut of the "clachan." Behold us then in a highland hut; a loop-hole as large as the crown of one's glengarry for a window; a peat fire on the earth floor, filling the hut with blue eye-smarting "reek," through the gloom of which one sees the grandfather and grandmother crooning over the fire, two calves whose eyes shine like emeralds, a fat young grunter and sundry fowls, two cats and a dog. Seated round a steaming dish of haddock, with sea-oat cake and sour milk, what care two healthy fellows roughing it, though storm may rage! our sleep on bed of straw and heather will be sweet—sweet as he only knows who loves Nature in all her moods; following her spirits, the free birds of the air, loving her in mist and sunshine, in calm and storm; seeing her soul almost human in her passion, almost divine in her tenderness; her creatures leading the mind up to her creatures' God, purifying and elevating the soul, and her breath giving new life and energy to the body.

THEODORE C. WALKER.

Ornithological Notes from North Lincolnshire.

By JOHN CORDEAUX, Esq.

(Continued from Zool. S. S. 2055).

FEBRUARY, 1870.

THE month on our eastern coast has been unusually severe, a succession of gales, frosts and snow-storms, for which we have to go back to the severe winter of 1861-2 for a parallel. On the 6th, 7th and 8th we experienced some severe weather and heavy gales, and on these days at Wick, on the east coast of Caithness, the waves, for three days and nights, swept every seven or ten minutes in a solid mass of green water as high as twenty-five to thirty feet above the parapet of the new pier. The 12th, 13th and 14th were the roughest days I ever recollect in our Lincolnshire marshes: there was a heavy and continuous gale from the east, intense frosts, and frequent snow-storms, during which it was next to impossible to make head against the blast; and in the intervals between the squalls the air was filled with minute particles of frozen snow drifting in dense clouds, and cutting the skin like needle-points, while with every increased gust huge columns of this fine snow-dust were whirled aloft and went careering across the bleak plains, like the sand-columns of the desert, or the fabled genii of an eastern tale. On the night of the 21st there was an extraordinary high and destructive tide, doing more in one night than the accumulated efforts of ten years, to injure and encroach upon the coasts of Yorkshire and Lincolnshire. Fortunately it was a neap tide, otherwise the damage would have been fearful. This severe weather drove many large flocks of wild-fowl into the Humber, including swan, brent geese, scoters, scaup and tufted ducks, shieldrake, wigeon, divers, gulls, &c.

Goldeneye.—February 10. One of my men gave me a fine old male goldeneye, taken at daylight this morning on our main drain. The drain was frozen through nearly to the bottom and the water running over the ice surface: this ice prevented the duck from diving, and, as the man said, it was in no hurry to take wing, giving him time to knock it over with a clod. A female of this species shot on one of the open drains in the marsh on the 12th, had in the stomach a few shells of Physa fontinalis, and a mass, apparently, of vegetable matter: on dissolving this, however, in water, and carefully examining the fragments under the microscope, I found it consisted almost entirely of the remains of water-larvæ of some Neuropterous insects, the small portions of vegetable fibre having probably been swallowed with them. I am unable to give the species of insect these belong to, but the outer coat in some is peculiarly barred and streaked with dark stripes. This agrees with what Macgillivray says of this duck, that their food consists principally of the larvæ of water insects. The goldeneye is not common on this coast, very rarely falling to our gunners, and I seldom see them in the local game-shops.

Wood Pigeon.—February 10. Returning home this evening down the "beck," from looking after the wild ducks, I stood for a short time at the corner of a plantation where the wood pigeons usually roost, and in a few minutes shot four as they came in: each had its crop crammed exclusively with fragments of cabbage-leaves, one alone containing as much as would fill an ordinary breakfast-cup. Wood pigeons prefer the leaf of this plant to almost any other green food, and if undisturbed will soon make terrible havoc in a cabbage plot.

Fieldfares and Larks feeding on the Swede Turnip.—February 11. I have observed lately many freshly drilled holes, an inch deep and about half an inch in width, in the swedes, and much fresh pulp scattered round the bulbs. The only birds frequenting the field were fieldfares and larks, and I hardly suspected these capable of doing the mischief, although the small foot-marks in the snow around the bulbs certainly looked suspicious. This morning, however, I shot a fieldfare in the very act of digging a hole into a root, and on opening him found his stomach full of the pulp of the turnip. The stomachs of three larks, opened at the same time, contained nothing but small green fragments of the swede-leaf and many minute stones.

Snipe.—February 11. I shot a one-legged snipe this morning, that is, having only one available leg, the other (tarsus and foot) being doubled forward along the tibia and firmly fixed there, reminding one of the constrained and induced attitude of a Hindoo fakir. The toes were slightly tumid, and two claws were wanting. This bird was in good condition.

Wigeon.—The males are now (February 12th) in full plumage.

Snow-flake.—February 15. The severe weather on the 12th and following days quite cleared the marshes of birds, driving them into the stack and fold-yards; even ducks and snipe gave it up as a bad job when the drains became full of drifted snow. The only small birds that "kept the open" were the little snow buntings, who rather, judging from their sweet cheery notes, seemed to enjoy the weather. Two or three of these little fellows, shot for examination, had their stomachs (the inner coat or cuticle of which is very tough, almost like thin horn) filled with various grass-seeds: they are always very fat. I lately saw a flock containing many hundreds on some oat-stubbles near the Humber bank, and, as they now are assuming the adult dress, the dark and light markings in the plumage contrast much more than in the autumn flocks. When hundreds are thus on the wing together, with a background of black, heavy, snow-laden clouds, it is a most striking and pretty sight, and one which forcibly suggests the beauty and appropriateness of the name.

Goosander.—February 15. An immature male, measuring twenty-six inches and a half over all, was brought me this evening by one of our gunners, who shot it near the Humber embankment coming over from the land. It is the fourth of this species I have come across in this district in fifteen years; one of these was an adult male shot at Cleethorpes in the winter of 1866. Some years since, in the winter, when walking down this beck at dusk two goosanders rose from a deep hole at a sharp bend in the stream, and I was lucky enough to get the male, a magnificent adult. He fell winged, and when I lifted him disgorged two trout, which, judging from their freshness, could only have been just swallowed: the larger of these was seven, the other about five inches long.

Shieldrake.—February 17. Has been more than usually plentiful on the Humber during the winter: I have seen eight in one day shot on the coast. The muscular coat of the stomach in this species is very thick and strong, and apparently capable of reducing any tough morsel. One opened to-day contains sand, and about a hundred small shells of the genus Buccinum.

Blackthroated Diver.—An adult female was shot on the Humber on the 16th. I had an opportunity of examining this bird, which belongs to a friend. As I know many of the readers of the 'Zoologist' are interested in the plumage of the divers, I copy from my note-book the description of the plumage of this bird, which was a very fine specimen, and partly assuming the summer plumage.

Colymbus arcticus (Linn.)—Adult Female.

Total length over all	30 inches.
Bill along ridge	2 13/20 "
" gape to tip	4 "
Depth at nostrils	¾ inch.
Width below nostrils	½ "
Wing from flexure	13 inches.
Tarsus	3¾ "

Iris red-currant colour. Bill grayish blue, gradually becoming darker towards the tip, ridge of upper mandible nearly black. Feet and tarsi dark olive-brown outside, pale flesh inside. Head and upper neck mouse-colour; forehead, sides and nape much darker. Upper plumage, scapulars and wing-coverts black, glossed with green. A row of feathers on each side of upper back tipped with white, forming two diverging lines. Scapulars broadly tipped with white, with the shafts of feathers black. The feathers of the greater and lesser wing-coverts have a white spot on each side of shaft near the tip. Sides of lower neck gray, streaked with white. Tail black, some of the feathers narrowly tipped with white. Primaries—outer webs black, edged and tipped with smoke-gray; inner webs brownish black, shading gradually towards the edge (and more distinctly in those nearest the secondary quills) into marbled brown and white. Secondaries brownish black, with the greater portion of the upper inner webs white. Under wing-coverts and axillaries white, the latter in the feathers nearest the body with a brown shaft. Chin, cheeks, and all under parts, white, excepting a dark line under wings running along body. There is a great irregular V-shaped mark on the throat, formed by tips of feathers, which are black. A dark streak half an inch in width extends on each side of neck between gray of upper and white of under parts. This is streaked with white at both extremities, but not in the central portion.

Brent Goose.—This is the only species of goose that I have heard of as shot on the Humber in February. All the larger species appear to have been driven away by the severe weather. I got a fine female Brent this morning, one of two shot on the coast.

Little Gull.—Several of this small and elegant species have been shot on the Yorkshire coast during the month. Mr. Richardson, of Beverley, in a letter dated February 18th, remarks, "I have received thirteen little gulls shot on the Bridlington coast during the last fortnight, seven adults and six immature." And in a more recent communication, "There have been twenty-nine little gulls shot in all, nineteen old and ten young birds."

JOHN CORDEAUX.

Great Cotes, Ulceby, Lincolnshire,
February 7, 1870.

Erratum.—"Ornithological Notes from North Lincolnshire" (Zool. S. S. 2053), line 7, *for* heard *read* observed.

Extracts from a Memoir intituled 'A Monograph of the Alcidæ.'

By ELLIOTT COUES, A.M., M.D.

(Continued from Zool. S. S. 2016).

2. Subfamily PHALERIDINÆ.—Genus FRATERCULA, *Brisson*.

Bill rather longer than the head, or than the middle toe and claw, nearly as high at the base as long, exceedingly compressed, the sides nearly vertical, the base of the upper mandible with an elevated horny ridge, entirely surrounding it; the basal moiety of the upper mandible with its sides perfectly smooth, forming an elongated oblique triangle with two curved sides; terminal moiety with three or four deep very oblique curved grooves, from commissure to culmen, their convexity looking forwards. Under mandible without a basal ridge, the basal moiety smooth, the terminal with grooves, in continuation of those of the upper mandible. Culmen commencing on a level with the forehead, thence regularly declinate, very convex, with unbroken curve, its ridge sharp, the tip acutely pointed, overhanging. Rictus perfectly straight, except at the end; the angle of the mouth occupied by a circular callosity of membranous tissue; gonys ascending, slightly sinuate, the keel sharp, terminating posteriorly in a thin, elongated, almost hamular process. Nostrils placed just over the commissure, linear, long, reaching nearly across the base of the smooth triangular space of the upper mandible. No nasal fossæ; both eyelids furnished with prominent callosities, in one species developing into a slender acute process. No crest; a peculiar furrow in the plumage behind the eyes, as in Lomvia. Wings of ordinary length and shape. Tail contained two and three-fifths times in the wing; the lateral feathers slightly graduated, the central pair shorter than the next ones. Tarsus very short, only equal to the inner toe without its claw; stout, scarcely compressed, covered with minute reticulations, except for a short space in front, which is scutellate. Outer toe about equal to the middle; its claw shorter than that of the middle; middle claw much dilated on the inner edge; middle and outer claws slightly curved, not very acute, upright; inner claw very large, greatly curved, forming a semicircle, exceedingly acute, usually lying *horizontal*, not upright.*

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* The peculiar position, no less than unusual shape of the inner claw of this genus is a strongly-marked character, not found in any other except *Lunda*. The great curvature and extreme sharpness of the claw could not be maintained were it vertically placed like the other claws, as it would be worn down by constant impaction against the rocks which the birds habitually alight upon. But in the usual attitudes and movements of the birds it lies perfectly flat on its side, and is so preserved intact. The birds make great use of this claw in digging their burrows or in fighting; and the preservation of the instrument for these purposes is evidently the ulterior design of the peculiar direction of its axis. The birds have the power of bringing it, on occasion for use, into a vertical position. These facts, mayhap, are not generally known. See Pr. A. N. S., Phila., 1861, p. 254.

A very peculiar, though well-known genus of Alcidæ, without an intimate ally except Lunda. The essential characters lie in the structure and configuration of the bill, the rictal and palpebral appendages, and the shape and position of the inner claw; although there are other features involved. Lunda is crested, with no furrow in the plumage, no palpebral appendages, and a very differently shaped bill.

Three distinct species represent the genus, as far as known. They are all peculiarly boreal birds, not coming far south, even in winter. One is extremely abundant on the shores of the North Atlantic; another inhabits the North Pacific exclusively; another is more particularly a denizen of the Arctic Ocean at large. They may readily be distinguished as follows:—

Species (3).

I. A slender acute upright horn on the upper eyelid. Black of throat extending to bill. . . . . 1. *corniculata.*
II. A short blunt process on the upper eyelid. A black ring around the neck, not extending to bill.
    Bill moderate; chord of culmen 2·00, the curve 2·10, the ordinate 30; depth at base 1·40 (average), wing 6·50. . 2. *arctica.*
    Bill large; chord of culmen 2·40. the curve 2·60, the ordinate ·45; depth at base 1·70 (averge) wing 7·25. . . . . . 3. *glacialis.*

Fratercula arctica (L.), Steph.—Habitat: Coasts and Islands of the North Atlantic, very abundant. Rare in the North Pacific (Pallas), where replaced by F. corniculata. In winter, south on the American Coast to Massachusetts. Breeds on the islands in the Bay of Fundy, (Boardman). Numerous specimens in all American Museums.

Adult (breeding plumage): Iris hazel brown. Eyelids vermilion-red, the fleshy callosities bluish ash. Base of bill and first ridge dull yellowish, the smooth contained space bluish, rest of bill vermilion-red, the tip of the lower mandible and the two terminal grooves yellowish. Legs and feet coral-red, claws black. Crown of head grayish black, the edges of which are sharply defined against the colour of the sides of the head, chin and throat, and the posterior edge of which is separated by a very narrow but distinct transnuchal stripe of ashy from the colour of the back. Sides of head, with chin and throat ashy white; nearly white between the eyes and bill, and with a maxillary stripe or area of blackish ash on either side of the throat. A narrow, distinct line of white along the anterior edge of the antibrachium. Entire upper parts glossy black, with a bluish lustre, continuous with a broad collar of the same around the sides and front of the neck. Under parts from the neck pure white, the elongated feathers of the flanks and sides blackish. Under surface of wings pearly ash-gray; inner webs of primaries and secondaries dull gray-brown, the shafts brown, blackish at tip and whitish towards the base.

Length 13·50, extent 24·00, wing 6·50, tail about 2·25; tarsus 1·00; middle toe 1·40, its claw, ·40; outer toe 1·40, its claw ·30; inner toe 1·00, its claw ·40; bill—chord of culmen 2·00, its curve 2·10; depth of bill at base 1·40; rictus 1·25; gonys 1·45; greatest width of bill (which is at base of nostrils) ·60; length of nasal slit ·35.

Young: Bill much smaller and weaker than in the adult; without the basal ridge, and with only slight indications of the warty callosities at angle of rictus; the terminal grooves wanting, or faintly indicated; the culmen much less convex; the gonys convex and ascending posteriorly, without the sharp hamular process at base. Such are the general characteristics of the young, though full-grown bird. Birds not grown have their bill much smaller still, entirely without grooves or ridges, acute at the apex, the culmen and gonys perfectly straight; the lateral aspect of the bill is almost an equilateral triangle. Bill basally blackish; terminally yellowish. Legs and feet reddish yellow, obscured with dusky. The eyelids want the fleshy processes. In colours of plumage the young birds are almost exactly like the parents, except that the ashy of the sides of the head is tinted with sooty black, more or less directly continuous with the black of the crown, and lightening into a dusky ash on the auriculars and lower parts of the sides of the head.

Nestlings are covered with blackish down, becoming whitish on the under parts from the breast backwards.

This species presents little variation in any respect from the conditions as above described. The dimensions do not vary much, and even the bill is very constant in size, shape and colours. The plumage of the adults scarcely presents appreciable variation.

The protuberance on the lower eyelid is horizontal, and occupies the whole length of the lid. That on the upper eyelid is nearly perpendicular, and higher than broad; but is short, acute, and never developed into an acute process.

There is absolutely no difference between American and European specimens.

Fratercula glacialis, Leach.—Habitat: Coasts of the North Atlantic; but a more boreal species than F. arcticus; Arctic Ocean, Spitzbergen. Near Port Foulke, Greenland (Mus. Smiths. Inst.), "Europe," Greenland (Mus. Acad. Philada.) Not authenticated as occurring on the coast of Maine.

With the colours, and much the general aspect of F. arcticus. Larger than that species. Protuberance on upper eyelid more decidedly acicular; in fact intermediate in size and pointedness between that of F. arctica and F. corniculata. Bill much larger, comparatively and absolutely, than that of arctica, and differently shaped; its colours about the same. Bill very deep at the base, the basal ridge rising high on the forehead; culmen much arched, towards the end dropping nearly perpendicularly downwards, so great is its convexity. Upper mandible with four decided grooves; the lower with three, being one more on each than is usual in arctica. Gonys more convex in outline, yet not produced posteriorly into so acute a hamular process. Length 14·50; extent about 26·00; wing 7·25; tail 2·25; tarsus 1·20; middle toe and claw 1·90, outer do. 1·90, inner do. 1·45; bill—chord of culmen, 2·40, its convexity 2·60, ordinate of the curve ·45; depth of bill at base 1·70, length along rictus 1·50, along gonys 1·60; greatest width of bill ·65; length of nasal aperture ·40.

The development of the bill, changes of plumage and individual variations of this species are doubtless identical with those of arctica. Young birds of the two species might not be satisfactorily distinguishable.

Fratercula corniculata (Naumann), Gray.—Habitat: Coasts and Islands of the North Pacific and Arctic Oceans. Kamtschatka (Mus. Acad. Phila.) Sitka (Schlegel, Mus. Pays-Bas.) Kotzebue Sound, and St. Michael's, Russian America (Mus. Smiths. Inst.) Southern extension on west coast of America not determined. Not recorded from the North Atlantic.

Adult (breeding plumage): Bill very large, especially high at the base for its length, the height being about equal to the chord of the culmen, exclusive of the width of the basal rim; base of culmen and angle of gonys both produced far backward, giving a greatly curved outline to the base of the bill along the feathers of the sides of the head; sides of the bill not distinctly divided into two compartments; nearly plane and smooth in their entire length, with only three faintly pronounced short grooves; culmen exceedingly convex, regularly arched in the arc of a perfect circle; the tip of the upper mandible acute, moderately overhanging, the basal rim broad and prominent; rictus (not including the part beyond the basal rim of the upper mandible) very short, only equal to the height of the upper mandible at base; gonys sinuate, at first convex in outline, then slightly concave; its length but little less than the chord of the culmen.*

Appendage of the upper eye-lid produced into a long, slender, acutely pointed upright spine; that of the lower eye-lid much as in other species of the genus.

Form otherwise as in F. arctica and glacialis. Larger than the former, about the size of the latter.

Crown of the head deep grayish black; the patch of this colour triangular in shape, narrowing anteriorly to a point at the base of the culmen. Sides of the head white; the furrow in the plumage behind the eye, and the sides of the lower jaw tinged with dark ash. A narrow distinct line of white along the edge of the fore-arm. Entire upper parts very glossy blue-black; a duller more fuliginous shade of black encircling the neck before, and running forwards on the throat and chin quite to the bill. Other under parts pure white, except a few elongated blackish feathers on the sides and flanks. Under surface of wings dark pearly ash. Legs and feet orange-red, the webs tinged with vermilion. Claws brownish black. Palpebral appendages apparently ashy black. Bill yellow, tinged with red, the terminal portion blackish. Rictal callosities brilliant yellow-orange.

Length 14·50; extent 24·50; wing 7·25; tail 2·75; tarsus 1·10; middle toe and claw 2·00; outer do. 1·90; under do. 1·35; bill—chord of culmen 2·00, its curve 2·25; rictus from basal rim to tip 1·20; gonys 1·75; depth of bill at base 1·80; its greatest width ·60; length of nasal slit ·40; length of superior palpebral appendage ·35.

This interesting species may be recognized at a glance by the prominent horn over the eye, and the extension of the black collar on the throat to the bill. The bill also differs from that of either of the other species in its shortness, compared with its great depth at the base, and the nearly smooth sides, which are not distinctly divided by a ridge or groove into two compartments. The bill is also comparatively thinner than that of the other species, and differently coloured.

Prof. Naumann first described this species from Kamtschatka in his valuable memoir on the genus in the 'Isis,' as above cited. It has been occasionally confounded with glacialis, *Leach*, which is quite a different bird. It is a North Pacific and Arctic species, not recorded from the Atlantic. Excellent specimens are contained in the Philadelphia Academy and Smithsonian Institution: one of these in the collection of the last-named is probably the original of Audubon's plate of "glacialis."

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* The lower mandible in this specimen is so thin near the angle of the gonys as to be transparent. Ordinary type can be read through it.

Genus LUNDA, *Pallas*.

With somewhat the general aspect of Fratercula. No horny appendages to the eyelids. No furrow in the plumage behind the eyes. An extremely elongated crest on each side of the head. Upper mandible with only an indication of a basal ridge along its sides; the culmen divided into two parts, whereof the basal is surmounted by a prominent widened ridge, ending abruptly; sides of upper mandible with three well-marked curved grooves, widely separated, whose convexity points backwards. Under mandible with its sides perfectly smooth, and its base very convex, not concave. Rictus very sinuate; gonys slightly curved. Feet, wings and tail, as in Fratercula.

The above diagnosis indicates only the principal features wherein this genus—or subgenus, as might be contended with some reason—differs from Fratercula. Except in the bill, eyelids and crest, the genus is exactly Fratercula, but the difference in these points seem sufficient to warrant generic separation.

Lunda cirrhata, Pallas.—Habitat: Arctic Ocean; Coasts and Islands of the North Pacific; on the American side south to California; of occasional occurrence on the Atlantic Coast of North America (Kennebec River, Audubon: spec. obtained; Bay of Fundy, in winter, Verrill), Spec. in Mus. Acad. Philada., Mus. Smiths., Cab. Geo. N. Lawrence, author's Cab., etc.

Bill very large and heavy, much longer than the head or middle toe and claw, its depth at base three-fourths its length; excessively compressed, the sides nearly perpendicular, except at base of upper mandible, where they bulge a little. Upper mandible divided into two portions; the basal part with its sides perfectly smooth, bounded along the base by a slight oblique ridge of subcorneous tissue, which is scarcely, however, elevated above the common plane, and is minutely studded with points; bounded above by a prominent wide ridge formed of an accessory corneous piece which surmounts this portion of the culmen; bounded below by the nasal slit; bounded anteriorly by a deep groove whose convexity looks backwards; these four boundaries enclosing a subtrapezoidal space. The terminal part smooth, except in the presence of three widely separated, oblique, curved, deep grooves, whose convexity looks backwards. Lower mandible with the sides perfectly smooth, the base convex, the convexity looking backwards, with slight indication of a ridge of punctulated, subcorneous tissue. General outline of culmen convex; this convexity, however, interrupted near the middle by a notch, forming a re-entrant angle between the two parts of the culmen, each of which, taken separately, is convex in outline—the anterior part the most so. Rictus exceedingly sinuate, the tip of the upper mandible being almost perpendicularly hung over that of the lower; the angle of the mouth occupied by a large fibrous or membranous excrescence, nearly circular in outline, turgid in life; in the dry state shrunken and minutely punctulated. This peculiar warty excrescence seems of nearly the same structure as the base of the bill itself, with which it is directly continuous. Nasal slit short, linear, subbasal, placed close to the commissural edge of the upper mandible. Palate and floor of mouth both deeply excavated; the cutting edge of both mandibles exceedingly sharp.

The eyelids are naked along the edge, but present no thickening or unusual fleshiness. The crest springs chiefly from what would otherwise be a naked linear groove in the plumage from the eyes to the extreme occiput. Some of the feathers begin to grow much above, if not a little anterior to, the eyes. The crest in perfectly adult birds is more than *four* inches long. The feathers have exceedingly slender, delicate shafts, and loose, entirely disconnected, though quite lengthy fibrillæ, and a peculiar silky glossiness.

The wings are of the usual size and shape in this family. The tail is comparatively somewhat longer, perhaps, than in any other Alcidine bird; the lateral feathers a little graduated; the central pair shorter than the next, producing an emargination. The legs are as in Fratercula. The claw of the inner toe presents the curious character which has already been dwelt upon in connection with F. arctica.

Adult: Bill orange-red; the basal moiety of both mandibles livid horn or enamel colour; the punctulated basal ridge, and rictal callosities more yellowish. Legs and feet obscure reddish; the webs bright coral-red; claws brownish-black. Edges of eyelids red;

"iris pale blue." Crests pale straw-colour; some of the posterior feathers, which grow from the black part of the head, black at base. Face pure white, abruptly defined. This white occupies the lores and sides of the head to the base of the crest, and encircles the bill, broadly on the sides, narrowly above and below. The black of the crown comes down the forehead to within a fourth of an inch of the culmen; just filling the crown between the crests, and ending with a directly transverse outline. The white on the side of the lower jaw extends to within about the same distance from the under mandible. A narrow, very distinct pure white line along the anterior edge of the fore-arm. Entire upper parts and under tail-coverts glossy black; sides of head and neck, and throat and breast fuliginous brownish black; other under parts the same, but more grayish; under surfaces of wings smoky gray. Wings and tail black; the inner webs of the feathers brownish black; the shaft of the first primary whitish on its under surface towards its base. The preceding description is taken from an unusually fine male specimen in the Smithsonian Museum (Sitka, May, 1867), representing the very highest condition of maturity. The crest is more than four inches long. It is not often that such very perfect specimens are met with in collections.

Length between 15·00 and 16·00; wing 7·75; tail about 2·00; tarsus 1·30; middle toe 2·00, its claw ·50; outer toe 1·80, its claw, ·40: inner toe 1·25, its claw ·30; bill—greatest depth (a little in front of extreme base) 1·90; greatest width (at angle of mouth) ·90; chord of culmen 2·40, of which the terminal portion is 1·40; rictus about 1·90: gonys 1·60; greatest depth of upper mandible 1·15; nostrils ·25 long.

Young (full-grown): Bill smaller than in the adult, and not so deep at the base; sides of terminal moiety of upper mandible perfectly smooth; chord of culmen 2·00: depth of bill at base 1·40. No crest; slight indications of it in some short yellowish filamentous feathers on the auriculars. White line on fore-arm imperfect. White about head as in the adult; but the black reaches nearly or quite to the base of the culmen and gonys. Otherwise like the adult; the under parts rather more grayish. The bill and feet appear to have been less brightly coloured.

This strange bird fairly disputes with Phaleris psittacula the claim to be regarded as the oddest of the odd species of this family. The peculiar configuration of the bill strongly characterizes it at all ages, independently of its remarkable head-markings. Though known for about a century, it has received no specific synonyms from any of the writers whose works have been examined in the preparation of the present memoir. Specimens are contained in nearly all the American collections. The bird is authenticated as occurring on the coast of Maine.

(To be continued.)

The Nest of the Alligator. By Captain H. W. FEILDEN.

THE account of the nesting of the crocodile in Ceylon (Zool. S. S. 2002), reminds me that its ally of the New World, though differing specifically, seems to have many of the same habits in regard to nesting as the Indian reptile.

Holbrook, in his North American Herpetology (vol. ii., p. 59), gives the geographical distribution of "Alligator Mississippiensis" as follows:—"The alligator is first observed on the Atlantic border of the United States at the mouth of the Neus River, in North Carolina; those that are occasionally seen farther north must be considered as stragglers rather than permanent residents. From this point they abound near the mouths of all the creeks and rivers that empty into the Atlantic Ocean, or into the Gulf of Mexico, as far as New Orleans, ascending up the Mississippi as high as the entrance of Red River, six hundred miles."

Having resided several years in the southern states of America, I have had frequent opportunities of watching these reptiles on the rice-plantations of South Carolina and Georgia, where they are numerous. In the summer-time they are to be seen floating like logs upon the water, or basking on the sand-banks.

In South Carolina the alligator hybernates (I am not aware if it does so in the warmer climate of Southern Florida): creeping under the banks, it wallows out a hole and buries itself in the mud. The negroes eat the flesh of these reptiles, esteeming the tail a delicacy, and search for them with long poles: when found in this torpid state they are easily killed.

Florida, however, is the paradise of the alligator; its numerous lakes and semi-tropical climate, in the southern portion of the State, are most conducive to reptile life. In the summer of 1864 I was in Florida, and my tour of duty took me almost to the western or Gulf of Mexico side of the State. My route took me through Sumter

County, and in a little village near Paneesofkee Lake I remained three or four days with an old back-woodsman, who showed me through the wild forests. Paneesofkee Lake, which is about six miles long and some two miles broad, was full of alligators: in some places they were floating ten or a dozen together; hundreds were basking on the banks, and as we rode along the lake-side a frightened one would every now and again slide into the water with a tremendous splash.

I think these Floridian alligators were longer than those further north. It is very difficult to give accurate measurements by the eye, yet I would say many were ten or twelve feet long, and doubtless in many cases much larger. They had probably never been disturbed, or fired at by man, for it is a very out-of-the-way part of the world: there are abundance of fish in this lake, no doubt fine feeding for them.

My guide, who was an intelligent man, seeing me interested in the alligators, asked me whether I should like to see their nests: I replied "Yes." After leaving the lake we soon rode out, through the forest, on to a "savannah": this term is applied in Florida to tracts of land, or rather depressions in the land, which in the wet season are under water, and remain so sufficiently long to prevent the surrounding forests encroaching on their limits; the summer sun dispels these accumulations of water, or dries up these shallow lakes, and leaves behind islands of lovely green turf, surrounded by a sea of forest, where the half-wild herds of cattle collect for the sake of pasture. Here and there on these savannahs you will notice, on the spots of greatest depression, pools of water with reeds growing: in the summer time these are drinking-places for the cattle, and around these little "meres" I was soon pointed out the nests of the alligators. At first sight I thought they must be the nests of birds; but having dismounted, and hitched our horses to the bough of a tree, we walked to the nearest nest and examined it. The nest was a conical mound built up of mud and reeds, about three feet high, with a slight depression in the centre. I do not think it had any eggs in it; if so they must have been covered up. The nest was surrounded by a trench full of muddy water, and from this excavation one of the materials for the nest had evidently been taken. I trust some careful observer will note how the alligator scratches out the mud to form the conical nest, and in what proportion she mixes the reeds and vegetable matter; the process must be very interesting.

My guide told me that the female alligator was perhaps hid in the trench or in some of the wallowing holes, of which there were several in the vicinity of the nest. Only having a switch with me on this occasion, I did not attempt to examine the nest more closely than from the outside of the trench, as a crack on the legs from the tail of a ten-foot alligator would be no joke.

I noticed on most of the savannahs in this immediate neighbourhood, wherever some water was left, several of the conical-mound nests of the alligators. In the shape of the nests and the surrounding trench they seem to agree with their Cingalese cousins.

I only had a chance of a hurried gallop through a portion of the State of Florida: from what I saw it must be a grand field for a naturalist who can stand a good deal of roughing.

H. W. FEILDEN.

Snake Poison.

The following letter, dated January 12, addressed to a Madras paper, by Mr. John Shortt, of Vepery, is interesting at a time when much attention is being given to the subject of snake-bites:—

On Saturday, January 8, about 12 o'clock, a Jogee, named Goorooven, who was in the habit of bringing me cobras, brought a friend with him, who had a fresh vigorous cobra, confined in a small earthen chatty, which I asked to see. Goorooven took out the snake, and I examined its mouth to see that the fangs were not tampered with, and finding that they were all right I directed him to put it up, for which purpose he took it out into the compound, and returned into the house. Not long after, one of my servants reported that the man was bitten. I ran out, and saw the man standing on the steps of my house with his left arm hanging and blood flowing from two points on the index finger. I took off my eye-glass, cut the cord, and tied it tightly around the base of the wounded finger, and another around the wrist, and with the penknife from my pocket opened the two points on the man's finger to the extent of about a quarter of an inch each; applied my mouth to the wounds successively, and sucked them freely, drawing out mouthfuls of blood at each time, which I spat out. In the meantime, my servant having brought a basin of water, the wounds were well washed, and I had liquor potash applied to them. I gave the man a large dose of brandy and potash, and ordered my carriage. Having lately shifted into my present house, all my things were in confusion, and I thought it advisable to take the patient at once to the General Hospital for further treatment. Neither driver nor horse-keepers were to be found, but, with the assistance of a cooly, who happened to be in the compound, the horses were harnessed and put into the carriage, the patient placed in, and I drove to the General Hospital, where the patient was received by the apothecary on duty; and Dr. Thomas, who was sent for, having arrived, kindly allowed me to continue to suggest the treatment to be pursued. I stayed at the Hospital for five hours, visited the patient again at night, and was delighted to find the man better. When I called at the Hospital next morning, except for the wound and swelling on his fore-arm and hand, the man was quite well, walking up and down the verandah.

The cobra was quite fresh and vigorous, over five feet in length, just captured and brought in, and the bite was severe and fully injected with poison, as will appear subsequently from the effect it produced on myself. I was in too great a state of excitement at the time of the occurrence, being so well convinced of its effect, from the numerous experiments I have been and still am carrying out with the cobra poison, to think of risk to myself; and all my anxiety was centred in endeavours to save the poor fellow's life, and it is a source of great pleasure and comfort to me to think that I have been successful in this.

On sucking the wound the blood had a very peculiar taste, which, although it attracted my attention at the time, I cannot now remember to describe. I felt quite well till about some two hours after, whilst at the Hospital, I began to feel a tightness across the gums and roof of the mouth in the space between the canine teeth. This was followed by a sharp stinging pain of a very peculiar burning character. I felt restless and uneasy at first, and then languid and faint, when, for the first time, it struck me that I might have imbibed some of the poison into my system. I became somewhat alarmed and anxious, and laid down on one of the Hospital cots in the ward next to the patients for a few minutes, and on telling Dr. Thomas that I was not feeling well, he kindly suggested that I should have some brandy and water, which I took, and felt the better for it. At 3 P.M. the uncomfortable feeling in my mouth extended not only to the roof internally, but externally in front of the incisor teeth along the gums under the upper lip. I had no appetite for dinner in the evening, and on retiring to bed slept soundly during the night, till about 4 A.M. the next morning, when I was awakened by an acute burning pain in the roof of the mouth, which continued some couple of hours, gradually subsiding, and leaving behind a soreness. I found that the part was blistered—the tongue to the extent of an inch from the tip quite raw, and the gums of the lower jaw also blistered. I now feel these parts so very sore and tender that I am unable to partake of my usual food.

It is with some reluctance that I have related the effects of the poison on myself, but in the cause of science and truth, and on a subject which has attracted universal interest not only in the profession, but by the public generally, I feel myself bound to relate facts as they occurred. I am happy to say that my patient is quite well; he left the Hospital of his own accord on January 10, but attends daily at my house, as the hand is still swollen and the wound unhealthy.

I hope on a future occasion to detail a mode of treatment to be pursued in all such cases. Of course there is nothing new in the sucking of a poisoned wound; this is well known to medical men generally. I only claim the fact of having brought it practically into successful play; but the potash treatment is original and my own, based on numerous actual experiments, carried out from time to time at much expense, trouble, and risk.—*John Shortt, M.D., in the 'Homeward Mail' of February* 19, 1870.

Natural History Notes from Minas Geraes, &c.

Bloxworth, March 16, 1870.

DEAR SIR,—The following notes from the journal of Mr. Henry Rogers, of Freshwater, now collecting birds and insects, &c., in Brazil, may perhaps interest the readers of the 'Zoologist.'

Very truly yours,
O. P.-CAMBRIDGE.

E. Newman, Esq.

Santa Fé, Minas Geraes, Brazil,
December, 1869, to January 18, 1870.

My dear Sir,—I send you a few rambling notes from my journal, in hopes that some of them may prove interesting. We are getting more butterflies and beetles here than where we were when last I wrote, but birds are exceedingly scarce. The beauty of the virgin forest exceeds all power of imagination; the trees are one mass of flowers of every tint, and their perfume overpowering: the scene is truly enchanting. There are, however, some items *per contra;* storms, for instance, which come on very suddenly; and when this takes place at night, the effect is grand beyond description; the lightning is more vivid than any I ever before witnessed, and lights up the hills for miles round, rendering every object visible with unearthly distinctness. The thunder shakes the very ground, while the rain pours down in torrents; the wind tears up large trees by the roots, valleys are turned into swamps from the streams, which rush down the hill-sides; in fact, in a few hours the whole aspect of the country is changed. Another *per contra* consists of the snakes, which are very numerous, and most of them exceedingly deadly: since we have been here we have seen some very bad cases of snake-bites. Monkeys are numerous, and their agile movements very amusing to watch; a far different thing watching them here in their native woods ~~from~~ what it is to see them in the Zoological Gardens at home! The other day we had a striking instance of the uncertainty of life in these parts; a fine strong "nigger" taken ill at noon and dead before sunset. The funeral ceremonies interested us much. The friends of the deceased placed a lighted candle in his hand, counted their beads, and held over him a bunch of flowers made in the shape of a cross (showing that they had some knowledge of Christianity); at midnight all the "niggers" met and sung a sort of chant over the corpse; the chanting awoke me, and at times the sounds from their simple and uninstructed voices were melodious and pathetic. We got up at half-past four the next morning to see the burial; the body was slung on a pole and carried by two "nigger" bearers, to the burial-ground—a very primitive-looking place, and greatly neglected: only one grave seemed to be at all respected,—the grave of a very favourite "nigger" we were told,—and this was surrounded with rough stakes: the grave was dry, and the body taken out of its winding-sheet, when we were surprised to see that it had on a pair of black trousers as an emblem of his colour, and a beautifully white shirt as an emblem of his immortal soul—so they told us: earth was sprinkled upon the corpse, and the ceremony was concluded: no prayers were said, but yet the whole was solemn and affecting. This negro was one belonging to Major Copote (of whom I have spoken in former letters): the Major is one of the kindest slave-masters in Minas Geraes, and is a thorough

"Abolitionist:" he is quite prepared for the carrying out of the Abolition-of-Slaves Law, and is most anxious for it to be passed: his hospitality to us has been excessive, and whenever we are near him the best of bed and board are always at our service, with a hearty and pressing invitation to remain with him. The necessity for an Abolition Law was strongly impressed upon us the other day by the causeless flogging of a poor negress; her cries made our blood run cold: she besought us to let her have a gun, on which the monster who flogged her fled as fast as he could: the laws restrained us from punishing him, so we could only remonstrate, but as far as we could judge this saved her from further outrage. Morality seems at the lowest ebb here; there are no places of worship whatever, and nothing to mark one day from another all the year round.

The noises one hears in the forest are very various, and extraordinary to those unaccustomed to tropical life—the "clang-clang" of the blacksmith-frog is most interesting; then the noise of the Cicadas, which I can compare to nothing but the whistle of so many steam-engines, while the illumination at night from fireflies is magnificent. We have just been successful in tracing to its cause one of these strange forest sounds—one which the natives told us was caused by an evil spirit: it was like the sound of a heavy sledge-hammer struck by a strong hand against some hollow substance: we were determined to find out the cause, in spite of the natives who warned us that we should never return from our search; not one of them dared to accompany us. After some hard work, and by proceeding very stealthily, we got close to where the sound seemed to come from, and saw a large and beautiful woodpecker hammering with its beak with all its force at a hollow tree: the sound produced must be heard to be believed, no description can give any just idea of it; so much for the evil spirit. Another sound—a peculiarly strange and unearthly one—is often heard: it always occurs just before or just after dark: some of the natives think it is made by a bird, but others shake their heads ominously and say "no good." Every one has heard it, but none have ever ascertained its cause: I can compare this sound to nothing except to the sound produced by what children call a "Hum-buzz"—*i. e.*, a piece of wood notched on both edges, and whirled swiftly round by a string tied to one of its ends. The noise I speak of, however, is infinitely louder; at one moment it seems almost in one's face, at the next, at one's feet, and then instantly high up in the air. I had often thought it must be caused by some insect, and I hope that we have almost solved the mystery; for last night while watching our nets for water-beetles the sounds seemed unusually strong, and were closer to us than ever: we immediately commenced striking with our nets (though we could see nothing) in the direction of the sound, and at last captured a large beetle, when at once the sound ceased and we heard it no more that evening. This beetle is among those sent home: it is a magnificent insect, and I feel no doubt whatever but that the sounds we heard were produced by it.

The rainy season has just set in, and it is very difficult now to work. The ground is a strong red earth, and exceedingly slippery when wet; the roads are quagmires; the mornings very cold with heavy white fogs on the mountains, making them appear almost as if covered with snow: these fogs quickly wet one through, and then when the sun bursts out, the steam evaporates from one's clothing so rapidly that one looks as if just out of a vapour bath; then perhaps in less than an hour's time the rain will come down in floods, so that what with fogs, rain and perspiration, we are continually in a state of "soak;" hence as may be imagined, the rainy season is very unhealthy, and a great deal of sickness then prevails; the wonder is how one manages to preserve health at all: up to the present time, however, we have both had good health, though we are out early and late and work hard; we use every precaution in the changing of wet clothes and avoidance of spirituous liquors, of which (cachaca or new rum) the natives drink an immense quantity; it is very cheap, only two shillings a gallon; but this is the only article that *is* cheap; every other commodity, of even the commonest kind, is two hundred per cent above English prices. Owing to the rainy season, our month's collecting has not been very productive, but we have done all we possibly can, and have sent home over a thousand specimens, besides three boxes of orchids, collected from the Mantigueira Mountains.

On the 1st of January we had one of the storms of which I spoke at the beginning of my letter: it commenced at 6 P. M., and lasted till daybreak next day; a little stream running near our hut became a torrent, and we were nearly washed away; thunder and lightning such as I have mentioned raged continuously, also *hail*, or rather pieces of ice, many of which measured over two inches in diameter; it was terrific; gigantic trees blown down like saplings, and at daybreak the forest appeared a complete wreck; however, we got from the fallen trees several orchids which it would have been impossible to have obtained from the trees while standing. The wet season lasts till

March, when we hope to leave for the interior; there will be then, we hear, eight or nine months' fine weather, and with health and strength we look forward to a grand harvest during those months. The "jiggers" are very troublesome to us, laming one for a week together sometimes; I send you one taken from my foot a few days ago. I hope some of the spiders I have sent home will prove new to you; I only wish you could drop in upon us for a few months and collect them for yourself; you would find plenty to do!

Ever truly yours,

H. ROGERS.

Rev. O. P.-Cambridge.

Ornithological Notes from South Devon.—Puffin. An adult bird was picked up dead on the beach near this town on the 9th of February, and was brought to me. These birds are very unusual visitors to Torbay.

Black Redstart. A very fine adult male shot near Poignton in the beginning of February.

Little Gull. I had the pleasure of examining at Mr. Shopland's, the Torquay naturalist, a beautiful adult specimen of this rare gull (at least it is considered in this neighbourhood as such), in full winter plumage. It had been shot in Torbay on the 12th of February.

Rednecked Grebe. A pair, in immature plumage, were killed in the Bay on the 15th and another on the 19th of February.

Shieldrake. An adult female shot off Brixham on the 15th of February. These ducks are not uncommon about the mouth of the river Exe.

Goldeneye. On the 16th of February a very fine old male, in full winter plumage, was brought to me. It had been shot the previous day on the river Teign.

Great Crested Grebe. These birds are unusually plentiful this spring in Torbay. A very fine adult specimen killed on the 18th; another on the 19th and a third on the 22nd of February. On the 5th of March another beautiful old bird was shot in the same locality, and was, like the above-named birds, brought to Mr. Shopland for preservation, where I had the pleasure of seeing them in the flesh.

Brent Goose. An adult bird was shot out of a flock of five in Poignton Marsh, on the 15th of February, and was brought to me. Three more of these geese were killed in the Bay a few days later: they were all adult birds. These are the first Brent geese that have made their appearance in this neighbourhood since many years.

Redbreasted Merganser. A fine female shot in the Bay on the 22nd of February.

Sclavonian Grebe. A young bird killed in the Bay on the 8th of March.

Redthroated Diver. A very fine specimen, with a bright red patch on the throat and very few white feathers about the head or neck, was shot in the Bay in the beginning of this month, and brought to me. Considerable numbers of these birds in the immature plumage have been seen and killed in the Bay.—*A. de Hügel; Florian, Torquay, March 19, 1870.*

Varieties of Birds.—Seen this autumn:—A snow-white starling, apparently healthy, feathers rich and plumous. A parti-coloured common bunting (*Emberiza miliaria*), the white feathers rather plentiful and tinged with yellow. A cream or almost white sand martin. A snipe from which the colour appeared to have faded, giving it a creamy look, but the pattern of the markings still appearing. In the Ballinclea (Killiney) rookery numbers of the young rooks have white chins, which disappear after the autumn moult.—*H. Blake-Knox; Dalkey, Co. Dublin.*

Early Nest of Longeared Owl.—Yesterday we took four eggs of the longeared owl from the deserted nest of a magpie in our plantations; the nest had been re-lined by the owl with its own soft feathers: one egg had been recently laid, and another showed signs of having been incubated. I think this is very early in the season for such a prize.—*H. F. Battersby; Cromlyn, Rathowen, Co. Westmeath, March* 10, 1870.

Pied Blackbird.—A gamekeeper has just shot near here a beautiful pied blackbird; it has a ring of white feathers round the throat and is otherwise marked and spotted with white.—*Id.*

Ruticilla tithys and R. Carii.—I was very glad to find in last month's 'Zoologist' (S. S. 2061) further remarks on the plumages of the black and gray redstarts, and particularly that Dr. Bree has taken my remarks in the spirit I made them—a desire to know more on the subject. As to Carii being synonymous with R. tithys I still dissent; that is, if the male R. Carii breeds in a different dress from that of R. tithys. Before anything can be done to separate or amalgamate these birds, modern proof, which should be easily obtained, is required to prove that there is an adult male of Carii from May to June; in other words, that *males* in Carii plumage are to be found in spring. If such males are to be found I think it highly improbable that Carii is synonymous with tithys, for this reason, that every species of redstart should or might have its Carii or permanent variety, or, in plainer language, that males would breed in female plumage: this is, I think, never the case, so why make tithys the exception? Dr. Bree has not defined his "moulting plumage," which, taken literally, means when the plumage is part summer and part winter, or *vice versâ*. I have no doubt he alludes to the first plumage, which is somewhat like Carii; but from the context one would fancy that the male tithys assumed the female or a similar dress in the winter, and retaining that dress through spring. bred so, or even remained "a permanent variety." Temminck's "sa robe d'automne" is also somewhat vague, but undoubtedly Temminck meant that the male might breed the first year in his first plumage, or first autumn plumage, probably taking birds as his guide from the late or second nest, which still in autumn bore the first plumage, which earlier egged birds would have lost. Many of the Sylviadæ leave Britain before the young have moulted, and again large numbers of the young leave in perfect winter plumage: this is caused by the time that elapses between the two nests. I stated (S. S. 2019) that the *first winter plumage* of tithys was very similar to the adult, but greatly concealed by long brown edges, and that the following spring, as in the wheatear and others, these fringes became abraded, and gave out the partly concealed but characteristic plumage of the male. Dr. Bree thinks it quite possible that the so-called R. Carii is the *young of the year* of R. tithys in imperfect plumage, and that in the second year it becomes R. tithys. This is quite contrary to my observations on the plumage of the redstarts, &c., which only in first plumage at all resemble their females, losing any similarity after the *first autumnal moult.* I am well aware many authors write that the plumage of the young stonechat, in first winter, &c., is like the female, but such is not the case, for I have found *male's feathers* sprouting amongst the well-known mottled first plumage of the young, and, as in the redstart, the only difference between old and young lying in the extravagantly deep brown or tawny fringes to the feathers of the latter. The plumages of Mr. Gatcombe are correct—"During the autumn and winter the tips of the feathers are long and tinged with brownish gray, &c:" this is the first winter plumage of R. tithys. An adult tithys never has a brown fringe to the dorsal plumage, but in winter the dark feathers of the back are deeply edged with hoary or steel-gray (like a jackdaw's head). I think, contrary to Dr. Bree, that it would make a very great difference, R. Carii and R. tithys breeding in distinct localities, particularly in the same place and at different levels. In his concluding sentence, Dr. Bree says, "It will, however, be a curious fact, if it is proved hereafter that all the year-old young tithys breed in their autumnal coats for the first time." By "autumnal coat" are we to read first plumage or first winter plumage, or the moulting and intermediate stage between the two? The steel-gray bird that I had caged, and which I thought a male, had *no rust colour on the abdomen*, which was pure white, and a brighter tail than that of tithys. So pure, perfect, and specific-like was the dress of this bird, and so unlike any other redstart, male or female, that if I had killed it out of Ireland I should have no hesitation in taking it for the male of a distinct species. Has Carii any rust-colour on the belly? Is the male of Carii much dissimilar from the female? Are all the birds called "Carii" rightly so called—are not many of them genuine females of tithys?—*H. Blake-Knox; March* 4, 1870.

Early Appearance of the Wheatear.—On Saturday last (the 5th of March) I saw two wheatears (*Saxicola œnanthe*), which had been killed near Plymouth on that day; and I have no doubt that the few mild days which occurred just before that time tempted them to cross the Channel. Several more were seen on the coast.—*John Gatcombe; Stonehouse, Plymouth, March* 8, 1870.

Early Whinchats.—On Sunday morning last, on my way to a little country church near here, I was surprised to see a pair of the pretty little whinchat, male and female: they followed me along a hedge for some distance, and once or twice I got nearly close to them. Is not this very early for them? I do not remember to have noticed them in previous years before early in April. I was more surprised to see them thus early, as the part was very exposed, and it was blowing a sharp north-east wind at the time. —*Edward Sweetapple; Eynsham Paper Works, near Oxford, March* 8, 1870.

Wagtail in pure White Plumage.—Did I ever mention to you that in the autumn of 1868 a specimen of the wagtail (I cannot say whether Motacilla Yarrellii or M. alba) was shot here in pure white plumage, without a mark of any kind?—*J. W. Harris; Derwent Bank, Troughton via Carlisle.*

Anthus ludovicianus vel *Anthus rufescens?*—Whether Mr. Boynton's bird is Anthus ludovicianus or not I do not believe can be said positively by Mr. Reeks, Mr. Gould, or any other naturalist. The reasons given by Mr. Reeks are most unsatisfactory, as a few fractional differences in measurements go for very little. As to the bird being A. rufescens, I am not convinced even by the dictum of so high an authority as Gould. The outer tail-feathers are those of this bird certainly; but then Baird mentions an instance in which the same feathers existed in A. ludovicianus. Did Mr. Gould ever see a specimen of A. rufescens in any age or plumage which was olive-green below, with dark spots? In fact, the bird is an abnormity; but, in my humble opinion, it resembles A. ludovicianus more than any other pipit. I shall not grieve or be disappointed should it turn out anything else.—*C. R. Bree; Colchester, March* 19, 1870.

Buff Variety of Sky Lark.—A buff variety of the sky lark was sent me for stuffing on the last day of December, 1869: it was shot at Beeston Regis, and proved on dissection to be a female. I have previously preserved two other examples of this variety, both of which were also females.—*T. E. Gunn; 5, Upper St. Giles, Norwich.*

Shore Lark near Weymouth.—I saw two male shore larks at Weymouth, Dorsetshire, on the 25th of November last: they had been shot a few days before by a man who was after wild fowl on Lodimoor, a wild place close to the sea, about a mile from Weymouth, and were set up for a gentleman in that town. They were in very handsome plumage, but had been much damaged by large shot.—*William Borrer; Cowfold, Horsham, Sussex, February* 24, 1870.

Shore Larks in East Yorkshire.—Perhaps some of your ornithological readers may be interested to hear that three shore larks (*Alauda alpestris*) were shot on the east coast on the 19th inst. They were not associating with any other species, and were all male birds.—*F. Boyes; Beverley.—'Field' of February 5th.*

Shore Larks near Dunbar.—Two specimens of the shore lark were shot out of a small flock, near the Tyne Estuary, by a boy, on the 23rd of January last. Both specimens (adult males) are now in the possession of Mr. Francis Balfour, of Whittinghame.—*R. G. Wardlaw Ramsay; Whitehill, Lasswade, N.B.*

Rock Doves at Salisbury—Some unusually large flights of pigeons have been passing over this city during the last few days: they were first observed on Saturday, March 12th, about 8.30 A.M.; their course was from south-east to north-west. They appeared in such immense numbers as occasionally to darken the air, and were noticed up to the 17th, but the flocks gradually diminished in numbers from the 15th. The amateur sportsmen of the district were afforded quite a pastime, and I am told that upwards of a hundred fell to their guns; but owing to the height and rapidity with which they flew many escaped the onslaught that was made on them. An examination of some of those that were killed proved them to be the blue rock dove (*Columba livia*). Mr. Wheaton, who shot several, told me that on opening their crops he found in some beech-mast and turnip-green, whilst others had nothing whatever in them; they were nevertheless all fat and in good condition. These large flights of pigeons are the more worthy of notice, since the rock dove is quite a rare visitor in this district, although stragglers are occasionally shot here during the winter months.—*Henry Blackmore; Salisbury, February* 18, 1870.

The Case of Bustards at Swaffham.—In reference to my notice in the February number of the 'Zoologist,' touching bustards in Suffolk and Norfolk, Captain Feilden, in this month's number, writes, "I should much like to know whether the case of bustards Mr. Moor refers to, then in the possession of the Rev. R. Hamond, of Swaffham, Norfolk, is still in existence." I have written to an old schoolfellow of mine, now in France, with whose brother (now dead) I visited Mr. Hamond's collection at Swaffham. I have just received the following answer:—"The particulars you state of the case are quite correct. On the death of the Rev. Robert Hamond, the original possessor, all his stuffed birds devolved upon his sister, Miss Hamond, and remained in the same house until her death, which took place some four or five years since, when they passed to her nephew, Mr. Anthony Hamond, of High House, Westacre, four miles from Swaffham: he died about three months since, and I have no doubt the birds remain with his widow and family in that their family mansion, with the addition of my poor brother's own collection, a very considerable and valuable one, including a female bustard, which was shot by Mr. Elwes, in Norfolk, when I happened to be staying at Swaffham, about forty years ago. My brother stuffed it and cased it himself. At least three females still remained about in Norfolk without any male, and some of their eggs were found, but which were of course useless. My brother once saw all three together, but I believe was without a gun at the time. I fancy one was afterwards shot by some one, and the others disappeared. It is now many years since one has been seen. I do not know the present owner of Westacre, but have no doubt any gentleman would be willingly allowed to see the collection—a sight of which is well worth a pilgrimage of some distance." My schoolfellow (above referred to) is Mr. William Dugmore, of The Firs, Hampstead, and his brother the late Rev. Henry Dugmore, both natives of Swaffham.—*Edward J. Moor; Great Bealings, Woodbridge, Suffolk, March* 16, 1870.

The Scarborough Bustard's Egg.—My note on the nesting of the great bustard in Yorkshire (S. S. 2063) disagrees, as far as dates are concerned, with Mr. Alwin Bell's note on the same page. We refer to the same egg, and I have since applied for information from the Museum, and my dates are in accordance with the writing attached to the specimen. Morris ('History of British Birds,' vol. iv. p. 3), writes as follows:—"Henry Woodall, Esq., of North Dalton, has informed me that in the year 1816 or 1817, James Dowker, Esq., of that place, killed two near there with a right and left shot, and saw a third I believe at the same time: a nest that had been forsaken was also found, with one egg in it, which is now in the Scarborough Museum." The same authority adds that the bustard brought into Scarborough (referred to by Mr. Bell) was *found* by the huntsman of the Scarborough harriers, and that the bird had been shot a few days before by the keeper of Sir William Strickland. This I think is far more likely than its having been *killed* by the hounds, for, unless previously wounded, I doubt very much if harriers could catch a bustard. One portion of my note requires explanation and amendment, namely, where I refer to the late Mr. John Wolley, and his desire to purchase the egg of Otis tarda from the Scarborough Museum. Professor Newton has kindly drawn my attention to this point, and has given me the following information:—Mr. Wolley knew and made a note in his egg-book of the existence of this egg, as far back as 1843. A subsequent note in his egg-book in 1850 adds that this specimen had been "boiled with the notion of preserving it," and was of "bad colour." About 1856, when on a visit to Scarborough, his sympathies for this egg were again aroused, and pointing out to the Museum Committee the interest attached to this specimen, he made a formal application to that body, offering in exchange a considerable number of the rare Lapland eggs that he had collected. The Committee of the Museum declined the proposal, and were doubtless right in doing so, as they have retained in their Museum a most valuable local specimen. I have added this to banish a suspicion, that might have arisen from my careless writing, that the late Mr. John Wolley offered money, or unknown to the Museum Committee endeavoured to procure this egg. The explanation is due to the memory of one of whom no naturalist can think without the truest regard.—*H. W. Feilden; Chester Castle, March* 11, 1870.

Great Bustards on the Yorkshire Wolds.—The great bustard said to have been killed by the Scarborough hounds in the autumn of 1816, I have since been informed, on the authority of a gentleman now living, and who was with the hunt at the time, was not killed by the hounds, but taken up alive by the huntsman in a turnip-field, having been wounded, it was supposed, by a gamekeeper a short time before. The field in which the bustard was taken is on a farm near the village of Hunmanby, and known as Hunmanby Field, about nine miles from Scarborough. Mr. Williamson, I find, is mistaken in supposing the egg in the Scarborough Museum was found on the same moor, and in the same year, as this bird; and when he kindly gave me the information communicated in my former note (S. S. 2063) respecting it, had probably forgotten the note in the Museum referred to by Captain Feilden, and which doubtless affords the best data, premising it was penned in March, 1840, at a time when the facts were comparatively fresh in the memory of the presenter and chronicler, Dr. John Bury. One of the two great bustards shot by Mr. James Dowker at North Dalton (mis-spelt "Salton" in my former notice) in 1810, was given by him to Dr. Bury, who presented it to the Prince Regent (George IV.): the other bird Mr. Dowker had cooked, and the year previous to that—*viz.* in 1809—five bustards were seen on the same moor, but were very wild, and none shot. At Rye, a few days ago, I was shown an old lithographed drawing, nicely executed, of the late Rev. R. Hamond's case of bustards: the male bird is in the centre, his wings slightly raised, with a female on each side, one represented feeding, and in the fore ground, near some tufts of grass, the two eggs and "little prince" are seen. On the back of the picture, in manuscript, I read the following account of it:—"This is a correct representation of a case of the large bustard (*Otis tarda*, Linn.), containing one male, two females, one young one, and a couple of eggs, which were shot and preserved by the Reverend Robert Hamond, A. D. 1820, and are now in his collection at Swaffham, Norfolk.—Hastings, May 1st, 1831." The naturalist in whose house I saw the drawing told me that, about the time the Bridlington specimen occurred, a male bustard was shot near Lydd, in Romney Marsh.—*Alwin S. Bell; Clive House, Hastings.*

Ruff in Somersetshire.—A ruff was killed on Sedge Moor, at the end of last week, and given to me by Mr. Scarlett, of Taunton, to whom it had been sent with some plovers. There was no appearance of any ruff, but some of the feathers on the body were already assuming a brighter colour.—*Cecil Smith; Lydeard House, near Taunton, March* 3, 1870.

Ruff in Norfolk.—A fine male was killed on the 25th of February, at Stalham, in Norfolk.—*T. E. Gunn.*

Sabine's Snipe.—Herewith I send you a specimen of Sabine's snipe, thinking it might be interesting to some of your numerous readers.—*J. W. D.*—'*Field.*'

[It is singular that a gentleman should record the occurrence of so rare a bird in so bald a manner, affording no clew to the country, date, sex or peculiarities of the bird, or the name or residence of the recorder! I have seen the bird and find it correctly named.—*Edward Newman.*]

The Moa or Dinornis as Human Food.—Dr. Julius Haast, of Canterbury, New Zealand, has been making a most interesting series of observations on some recently discovered cooking pits or kitchen-middens of the original inhabitants of these islands. The results of these investigations have been laid before the Zoological Society of

London by Professor Owen. Dr. Haast is of opinion that the various species of Dinornis must have been extinct for many hundred years, inasmuch as the Maories, the present inhabitants of New Zealand, have not even any traditions respecting them. Recently Dr. Haast has been fortunate enough to discover a large moa-hunters' encampment, with cooking-places and kitchen-middens, extending over more than forty acres, near the river Rakaia. In this he has made many excavations, which have given great insight into the habits of the primitive race of people who exterminated the Dinornis. Numerous rough stone implements were found, broken from boulders in a peculiar manner, or made of flint and other silicious stones, and closely resembling those found at Amiens and other places where pre-historic remains have been obtained. The cooking places or ovens are built like those of the Maories, and covered with silt and vegetable soil. The moa bones were found in considerable numbers, and must have been obtained from several different species of Dinornis. The greater number belonged to D. casuarinus, the next to D. didiformis and D. crassus. There were also some bones of D. elephantopus, and of Palapteryx ingens, but none of the very largest species, D. giganteus and D. robustus. The bones had all been broken so as to get out the marrow, the tibiæ being broken on both sides near the ends, and scooped out apparently with flint flakes, as if the eatable matter had been thus extracted from those parts of the bone difficult to break. The long bones had been smashed in the middle, and stones were found which had doubtless been used for this purpose. The skulls had been scooped out below so as to get at the brain, and the larger bones of the bodies of the birds were found in fragments. Along with these bones of the moa, Dr. Haast found also numerous bones of the native dog, of seals, sea gulls, and the tympanic bones of several species of whale, but no human remains: so that it would appear certain that the ancient inhabitants who hunted the moa were not cannibals. As no implement of warfare or chase were found except the flakes of flint and obsidian, it is supposed the birds were caught in pits or snares. There was a total absence of ornaments of any kind, excepting two wing-bones of the albatross which were bored through, and might have been used as ornaments.—'*Field.*'

Sir George Grey on the Date of the Extinction of the Moa.—At the meeting of the Zoological Society on Thursday, a letter from Sir G. Grey, in reference to Dr. Haast's communication respecting the date of the extinction of the moa in New Zealand, was read by Dr. Sclater. Sir George combats Dr. Haast's conclusions as stated in the 'Field' of February 5. In the course of the communication Sir George Grey says:—"I have often found moas' bones under similar circumstances, sometimes covered by a greater depth of soil; but I have regarded the ovens as of comparatively recent construction. These ovens are Polynesian cooking places. The Australian and several other savage races cook their food in quite a different way. With moa bones I have several times found bones of the kakapo (*Strigops*), a bird now extinct in the districts where I found the ovens. I have seen many hundreds of old ovens indistinguishable from those in which moa bones were found, and in some of these cases the natives were able to tell me the circumstances under which war parties or travellers had formed these very ovens many years since. I would observe that the native word "moa" is a Polynesian word, and the very word which new comers to the island of New Zealand would be likely to have applied to the Dinornis if they had found it in existence there. The natives all know the word "moa" as describing the extinct bird; and when I went to New Zealand twenty-five years ago the natives invariably spoke to me of the moa as a bird well known to their ancestors. They spoke of the moa in exactly the same manner as they did of the kakapo, the kiwi, the weka, an extinct kind of rail, in districts where all these birds had disappeared. Allusions to the moa are to be found in their poems, sometimes together with allusions to birds still in existence in some parts of the island. From these circumstances, and from former frequent conversations with old natives, I have never entertained the slightest doubt that the moa was found by the ancestors of the present New Zealand race when they first occupied the islands, and that by degrees the moa was destroyed and disappeared, as have several other wingless birds from different parts of New Zealand." The circumstance that Dr. Haast found in these cooking places only flint and obsidian, and no implements of warfare and the chase, goes far to prove that they could not be formed by the Maories, who were, comparatively speaking, a highly civilized race when they first took possession of New Zealand, having at that time magnificent boats, elaborate carvings, &c., &c. These could hardly have perished, as the same dryness of soil which has preserved so admirably even the gelatinous tendons of the moa would also have prevented the decay of any kind of any hardwood implements that were deposited with them.—'*Field.*'

Green Sandpiper at Hasketon.—A green sandpiper was shot by a gentleman, as it rose from a small brook on some marshy meadows, at Hasketon: its occurrence is somewhat rare in this part of Suffolk.—*E. C. Moor; Great Bealings, Woodbridge, Suffolk, December* 27, 1869.

Spurwinged Goose in Wiltshire.—A gentleman who resides at the Manor Farm, Upavon, and not, as erroneously stated, at "Charlton Farm," or "Netheravon," had noticed from his window a large strange-looking bird beside a pond near the homestead, in company with his tame geese. Surprised to see how amicable it was with his own birds, and curious to ascertain what it could be, he went out, hoping to get a closer view of it, when suddenly it took wing, alighting again in a meadow not far off. Seeing enough to convince him that the bird was very wild and very peculiar in appearance, and not wishing to lose it altogether, he returned for his gun, and succeeded in shooting it. Fortunately it was sent for preservation to a "naturalist" living in Devizes, and to him I am indebted for the following account:—"This bird," he writes, "was in excellent plumage and in very good condition, and was, I believe, a two-year old bird, or its back plumage would have been of a black hue, whereas it was mottled with gray: when walking its gait was very upright, more so than our tame geese, and its legs are longer. The spur upon its wings is about three-eighths of an inch long; and I found, upon examining the contents of its stomach, that it had been feeding upon corn and vegetable substances. It weighed four pounds one ounce, was twenty-seven inches in length, and four feet two inches in breadth. According to the instructions received, I stuffed it in an upright position, just as it had been seen when alive."—*Henry Moses, in* '*Science Gossip*' *for March*, 1870.

Ruddy Shieldrake near Tralee, County Kerry.—I mentioned (Zool. S. S. 2019) the occurrence of a ruddy shieldrake in the County Kerry. Now, owing to the kind attention of Mr. J. C. Neligan, of Tralee, the owner of the bird, I can record for future use the particulars of its capture and habits, as observed in the County Kerry, which have been sent me by that gentleman. It was shot on the 17th of August, 1869, on a lake about ten miles to the west of Tralee: this lake is close to the sea, and only separated from it by some low narrow sand-banks. "Towards the end of last March," says Mr. Neligan, "I heard that a very strange bird was constantly seen on the lake, and, in common with three or four others, I made every effort to get the bird: she was, however, so very wary and shy that it was impossible to get within shot of her. After she had been disturbed by our efforts she left the lake, and the next I heard of her was her being seen on one of the large bays in the north of this county, about twelve or fourteen miles from the lake. She was, I believe, fired at once or twice on the bay, but was not hit. She again appeared on the lake during the summer, and in August was shot. Some friends of mine watched the bird very closely, and, observing her haunts, one of them lay under cover in one of the haunts, and so got a shot within range: he slightly wounded her, and brought her home, to all appearance not much hurt: the bird would not eat and pined away, dying in a few days." Prior to the appearance of the shieldrake, Mr. Neligan says, the wind for some days was from north to north-east, and that the bird remained on or about the lake and neighbouring bay from its first appearance in March till killed in August. It had a very peculiar musical note, and unlike that of any of the duck or goose tribe that Mr. Neligan had heard. I have repeatedly seen the bird at Messrs. Williams's, of Dame-street. It is a male bird in second summer plumage—in other words, a little beyond one year old: the plumage much resembles that of an adult, and would be so this spring had the bird lived. Mr. Neligan is wrong in thinking it a female, unless dissection has proved it an excessively old one in part plumage of the male. By a reference to Newman's Montagu (1866) I find that only four have occurred in Britain to that date, three in England and one in Ireland: the latter, a fine male, is in the Museum of the Royal Dublin Society. This makes the fifth recorded British specimen.—*H. Blake-Knox; March* 2, 1870.

Smew at Yarmouth.—An adult male smew, in splendid plumage, was shot at Burgh, near Yarmouth, on the 30th of December last, and forwarded to me for preservation. The smew is rather rare on this coast.—*T. E. Gunn.*

Rare Grebes in Devonshire.—Several grebes, both great crested and Sclavonian, have made their appearance on the coast of Devon during the late severe weather, which has not been the case for many years past. I saw a Sclavonian grebe shot about an hour ago.—*J. Gatcombe; March* 8, 1870.

Rednecked Grebe at Teignmouth.—A specimen of the rednecked grebe was sent me from Teignmouth, on the 22nd of February.—*Cecil Smith.*

Sclavonian Grebe on the Wandle.—On the 15th of February our gardener shot a specimen of the dusky grebe, a young male, on our water at Carshalton.—*A. H. Smee; March* 5, 1870.

Sclavonian Grebe at Taunton.—I saw, a few days ago, a specimen of the Sclavonian grebe in the flesh, which had been shot in a brick-field opposite the convent on the Shore-ditch road. It was seen, in company with another, to settle on a small pond in the field; the other, however, was not shot. The person who killed it gave it to Mr. Bidgood, the curator of the Museum, for his private collection. The bird was an adult female, in winter plumage. It was killed on Friday, the 4th of March.—*William J. Chalk; The College School, Taunton.*

Redthroated Diver on the Devonshire Coast.—Redthroated divers (*Colymbus septentrionalis*) are very numerous on our coast at the present time, which is often the case after a severe winter. The young birds are now assuming the plumage of the more beautifully spotted bird of the two figured by Bewick under the names of the "first and second speckled divers," and the birds old are getting the leaden-gray neck and red patch on the throat peculiar to the breeding season.—*J. Gatcombe.*

Blackthroated Diver and Redbreasted Merganser on the Thames.—On the 26th of January I had the good fortune to obtain at Leigh a specimen of the blackthroated diver: it is an immature male: a few black feathers, however, were just beginning to appear on the throat, more especially at the sides and upper part of the throat. On the same day I shot a redbreasted merganser, an adult male, which was swimming in company with a female.—*A. H. Smee.*

Puffin on the Dublin Coast in February.—A puffin was picked up dead on the sea-shore last February. It is a bird of last year, in its first winter plumage: it is very seldom a puffin is met with in winter. I have killed two of these "winter puffins" myself; also one in second winter, the only example I have ever seen or heard of: they are in my collection.—*H. Blake-Knox; March*, 1870.

Avocet and Little Auk at Rye.—At Rye lately I saw another of the avocets (an old bird) taken there during the snow storm at Christmas (Zool. S. S. 2024), and a little auk shot in Rye Harbour.—*Alwin S. Bell; March* 12, 1870.

Little Gulls on the Yorkshire Coast.—At Scarborough, Mr. Roberts tells me in a letter, he has had five little gulls, three of them mature. I have also had two sent me from Bridlington Quay, both shot one day in February; and a correspondent informs me that fourteen little gulls, chiefly young birds, have been shot there, on the coast, this winter.—*Id.*

Little Gulls at Bridlington Bay. — During the late severe easterly gales we have had great numbers of wild ducks and sea birds in Bridlington Bay, and among them several little gulls, of which, as far as I am at present able to ascertain, about thirty have been shot, fourteen of which have come into my possession: of these nine are adult birds and five young ones Mr. Yarrell, in his description of this bird (adult in winter plumage), omits to mention that the under surface of the wings is of slate-gray: this is almost uniform in some, while in others the primaries are almost black, the shafts of the feathers being white. The primaries, secondaries and tertials are all tipped with white, and the whole under surface of the body has a beautiful roseate tint, which soon disappears after death. The young are not so large as the adults, and weigh on an average from eight to twelve drachms less; the roseate colour is not so perceptible, and the legs and feet are pale pink; those of the old birds are vermilion; claws black or dark brown. The largest of the adults measures eleven and a quarter inches in length, and weighs four and a half ounces, and the smallest of the young measures nine and a half inches in length, and weighs three ounces, but the latter is an exceptionally small specimen. I do not remember ever seeing more than three at one time, and I particularly noticed that the old birds and young ones did not associate; for instance, when I saw two together, they were invariably either both old or both young. They were never to be seen except when very stormy; when the weather is milder they have invariably disappeared, although we have immense numbers of the more common species.—*Thomas Boynton; Ulrome Grange, Lowthorpe, Hull.—'Field' of February 26th.*

Abundance of the Little Gull on the Norfolk Coast.—During the middle part of February the little gull occurred in some numbers along the Norfolk coast, and many specimens were shot. I received a dozen birds for preservation for different parties: all these were males and adult specimens, with the exception of two, which were birds of the year. All the specimens were in good condition, and rather fat. The food consisted of small fish (including the ten-spined stickleback, several specimens of which I found entire in their stomachs), worms (I took six large ones from the stomach of one bird), and shrimps: these were mixed with the remains of fish-bones, pebbles and bits of sea-weed: other items found consisted of bits of chalk and mutton-fat. The weight of specimens ranged from (immature birds) three ounces to (adult birds) four and a half ounces.—*T. E. Gunn.*

Little Gull in the City.—On the 26th of February last I was shown, by the kindness of Mr. Ashmead, of Bishopsgate-street, a very fine male of the little gull that was captured at noon on Friday, the 10th of February, in Cornhill, in the City of London.—*Frederick Bond; March* 1, 1870.

Kittiwake Gull.—Mr. Cordeaux notices two young kittiwake gulls in the plumage of the first winter, in which the feet were not black but greenish gray (S. S. 2053). I have a specimen, killed in the beginning of January, which presents the same character; otherwise it agrees perfectly with Mr. Blake-Knox's description. Do some kittiwakes change, as to the colour of their feet, earlier than others? Perhaps Mr. Blake-Knox, to whom we are indebted for so much valuable information as to the puzzling changes of plumage in this family, will favour us with his opinion.—*Edward R. Alston; 205, Bath-street, Glasgow, March* 10, 1870.

Wild-fowl at Hastings.—A brent goose and a shieldrake were shot on the coast last month; and in the game-shops I have seen for sale a male goosander, two mergansers, a bittern and several redshanks, hanging up amongst quantities of wild duck, snipe, wigeon, &c., chiefly from the London markets.—*Alwin S. Bell; March* 12, 1870.

Gilthead at Penzance.—By the kindness of Mr. John Symons, jun, of Mayon, a specimen of the gilthead (*Chrysophrys aurata* of Cuvier and Yarrell) was brought to me on the 1st of March. It was taken off the Land's End. As this fish but rarely occurs in British seas, I trouble you with a few details. Length over all 18¼ inches; eye to origin of caudal 13 inches; depth at origin of dorsal 5½ inches; thickness on line of depth 2¼ inches; between and in front of, rather than over, the eyes was an iridescent golden band, which faded off into iridescent green on the top of the head, and ended in a faint iridescent violet patch on each side of and across the head just over the top of the operculum. On and across the operculum, and on the body of the fish at the origin of the lateral line, was a large irregular dusky, scarcely black, spot. Colour over the back leaden blue, on the sides silvery blue, and on the belly white. There were traces of longitudinal lines along the lower sides and belly, but if ever of a yellow colour they had faded. The irides had lost their colour. The dentition was well marked, and was in close accordance with Yarrell's vignette of it. The fin-rays of my specimen were as under:—Dorsal 11—13, the two first spinous rays being joined from the base about half-way up the anterior ray, which was the shorter. Pectoral 16, the first two joined for the lower portion of their length. Ventral 1—6, as I believe, but owing to the stiffness of this fin when I examined it I am not certain about the latter figure. Anal 2—11, the first spinous ray being a double ray, connected throughout its whole length and having a single termination. Caudal 17, the central ray being very broad and soft. Above (or rather inside the upper edge of) the pectoral, and springing from the base of it, was a bit of free cartilage, an acute isosceles in form, and three-fourths of an inch long. The fish was taken in a gray mullet net, in shallow water, off a sand-beach occurring in the midst of a range of precipitous cliffs having deep water close to them. This is the first specimen of this fish I have met with here. I have had it preserved for our museum.—*Thomas Cornish; Penzance, March* 4, 1870.

Musical Fish.—While making an exploration in the bay of Pailon, situated to the north of the province of Esmeraldas, in the republic of Ecuador, I was coasting along, about sunset, when I suddenly heard a strange sound, extremely grave and prolonged. At first I thought it came from a fly or hornet of extraordinary size. But seeing nothing above me or in the neighbourhood, I asked the rower of my pirogue whence the sound came. "Monsieur," he replied, "it is a fish which is singing thus. By some it is named the Siren, by others, Musico." Having advanced a little further, I heard a multitude of different voices, which harmonized together, imitating a church organ to great perfection. I at once stopped the pirogue, and listened for a long while to this singular music. It is not only in the Bay of Pailon that I have enjoyed this phenomenon: it occurs in several places along the coast, and even still more markedly in the river Matajé, especially at the foot of a little promontory called Campana (the Bell). On going up higher than Capana, the traveller reaches Campanilla, where a similar circumstance occurs. I have heard it said that, in the river Molino, an affluent of the Matajé, the same singing of fish has been heard. It is evident, therefore, that to whatever species these fish belong, they are capable of living in two qualities of water; inasmuch as that of the bay is purely salt, while that of the river is brackish—at least, it mingles with the ocean only during tidal hours. The piscine performers execute their music without being disturbed by the presence of boats, and without showing themselves at the surface of the water, and this during several successive hours. One is surprised that so loud and distinct a sound can proceed from an animal not more than ten inches long. The fish itself has nothing particular in its external conformation to commend it. The colour is white, with some bluish spots on the back; at least, this is the fish which one catches with a hook on the spot during a concert. It is towards sunset that the fishes begin to make themselves heard, and they continue their song during the night, imitating the notes of an organ very exactly,—as when one is near the door of a church, but outside, not inside the sacred edifice.—*Translated for 'Science Gossip' by the Rev. W. W. Spicer, from a paper by M. O. de Thoron, read before the Académie des Sciences.*

[Several papers on this interesting subject have appeared in earlier volumes of the 'Zoologist:' I may especially refer to one quoted at p. 7237 of the original series.—*Edward Newman.*]

Proceedings of the Entomological Society.

February 21, 1870.—A. R. WALLACE, Esq., President, in the chair.

Donations to the Library.

The following donations were announced, and thanks voted to the donors:—'Additions to the Tenebrionidæ of Australia,' by F. P. Pascoe; 'Catalogus Methodicus et Synonymicus Hemipterorum Heteropterorum Italiæ indigenarum,' by Dr. Antonio Garbiglietti; 'Ueber Parthenogenesis bei Polistes gallica, und über Pædogenesis der Strepsipteren,' by C. T. E. von Siebold; presented by the respective Authors.

Election of Members.

Prof. J. C. Schiödte, of Copenhagen, and Prof. C. T. E. von Siebold, of Munich, were elected Honorary Members.

Messrs. G. T. Porritt, of Huddersfield, and Bernard J. Lucas, of Upper Tooting, were elected Annual Subscribers.

Exhibitions, &c.

Mr. J. Hunter exhibited a Plusia, captured by Mr. Stock (who was present as a Visitor) in the New Forest, and believed to be Plusia ni. (See Ent. Mo. Mag. v. 107; Ent. Ann. 1869, p. 124; 1870, frontisp. fig. 3.)

Mr. Albert Müller exhibited some insect-galls in the flowers of the tansy: he had received them in September from Mr. Dorville, in whose garden, near Exeter, the growth of the plant was encouraged, from finding that flies, moths and bees resort to it when the flowers are fresh. The galls had been submitted to the author of 'Vegetable Teratology,' and Dr. Maxwell Masters remarked upon them as follows:—"It appears to me that the whole flower (floret rather) has become hypertrophied, and at the same time the stamens, style and ovule have entirely disappeared. I judge the structure to be an altered flower because it springs from the axil of a bract or palea, and because at the summit are five little teeth precisely like those of the corolla. In my book, for the most part, insect deformities are passed over for two reasons; one that I am quite ignorant of Entomology, and the other that the changes produced by insects are often so far foreign to the natural conformation as not to admit of comparison with it. I should, however, have inserted your tansy under hypertrophy of the flower, had I seen it previously." Mr. Müller added that the perfect insect had not yet been bred, but the larva showed it to belong to the Diptera, though not a Cecidomyia.

Mr. Pascoe exhibited specimens of Nepharis alata, *Castelnau* (Révue Zool. 1869), from King George's Sound, and observed that the insect described by King, in the last Part of the Trans. Ent. Soc. N. S. Wales, under the name of Hiketes thoracicus, was manifestly identical therewith, so that Mr. King's name must sink as a synonym. By both authors the insect was referred to the Colydiidæ, but Mr. Pascoe thought the genus would be more appropriately placed near Monotoma.

Mr. Pascoe requested the opinion of Members on a point of nomenclature. Dejean, in his Catalogue (ed. 1834), proposed the name Diurus for a genus of Brenthidæ; but no description was published until Pascoe himself gave the generic characters in 1862. In 1852 Motschulsky described a genus of Telephoridæ under the name Biurus, which in Gemminger and Harold's Catalogue (1869) is changed to Diurus, thus clashing with the genus of Brenthidæ. And the question was, for which of the two genera ought the name Diurus to be retained?

Several Members asked whether it was certain that no description of the Brenthid genus, no tabular statement, or comparative remarks sufficient to constitute a description of the genus, were published before 1862? And Mr. Pascoe replied, that though the genus and the name were adopted by Schönherr in 1840, and though Westwood had in 1848 described and figured a species, neither author had specified any generic characters.

Many Members objected that no alteration of Motschulsky's name was admissible, and that Biurus ought to be retained. Mr. Bates protested strongly against the numerous alterations in names made by Gemminger and Harold.

Mr. Dunning remarked that, according to the view promulgated in Mr. G. R. Crotch's paper recently read before the Society, the Brenthid genus was entitled to priority as from 1834: if this ground failed, there was something in the contention that the genus was well established by the publication of Westwood's figure in 1848. But even on the assumption that Diurus dated only from 1862, he maintained that the name ought to be applied to the genus of Brenthidæ. The publication of Biurus in 1852 left Diurus unoccupied in 1862; and the publication of Diurus in 1862 was a sufficient reason for not altering Biurus into Diurus in 1869. If Biurus must be altered on the ground of its hybrid formation, it cannot now be altered to Diurus, but must be altered to some unoccupied name; in other words, Biurus must be abandoned altogether, and a totally new name given to the genus of Telephoridæ.*

The President assented to the conclusion that the publication of Diurus in 1862 was a bar to the alteration of Biurus into Diurus in 1869. And it appeared to be the general opinion that Diurus ought to be retained for the genus of Brenthidæ.

Paper read.

The following paper was read:—"On some Butterflies recently received by Mr. Swanzy from West Africa;" by Mr. A. G. Butler.

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* In 1833, Gyllenhal, adopting a MS. name of Chevrolat's, described Ceocephalus furcillatus (Schönh. Curc. i. 359). In 1834, Dejean, in the second edition of his Catalogue, separated furcillatus from the genus Ceocephalus, and proposed the genus Diurus for its reception. In 1840, Schönherr (vol. v. p. 510) adopted both the genus and the name. In 1848, Westwood described and figured the same species under the name of Diuris (*sic*) forcipatus (Cab. Orient. Entom. pl. xv. fig. 3). In 1862 Pascoe (Journ. of Entom. i. 392) formulated the generic characters. Motschulsky's Biurus was published in 1852 (Etudes Entom. i. 13).

Mr. Crotch's contention is (Trans. Ent. Soc. 1870, p. 41) that "genera proposed in Catalogues on *previously described* species are entitled to priority." If this contention be sound, then Dejean's Diurus dates from 1834, eighteen years prior to Motschulsky, and Mr. Pascoe's difficulty does not arise.

So also, if Biurus, in spite of its hybrid formation, is to remain unaltered, Mr. Pascoe's difficulty does not arise.

These, however, are modes of avoiding the question, not of answering it. Let us consider it from Mr. Pascoe's own point of view, admitting for the present argument the two postulates which the question assumes, (1) that the Brenthid Diurus dates only from 1862, and (2) that Biurus is not to be retained.

When a name is simply mis-spelt, I hold that the spelling may be corrected, but the name retains its priority. Stephens wrote Oinophila, which has been corrected into Œnophila; but the genus Œnophila is properly referred to Stephens, and dates from the time of the publication of Oinophila.

But when a name is mal-formed, the malformation must either be retained or discarded *in toto;* in the latter case, a new name is substituted, and the new name dates only from the time of substitution.

Hybrid names fall within the latter class. They are malformations, not mis-spellings; if not retained in their deformity, they are to be eradicated and replaced, but not reformed. If Stephens had written *atri*cephalus, would any one cite the same insect as the *melano*cephalus of Stephens?

The fact that by the alteration of a single letter the hybrid Biurus can be transferred into the pure-breed Diurus is at first sight misleading. It looks like a very simple case of correcting a mis-spelt name. But in truth it is much more than this. To convert Biurus into Diurus, an operation is performed precisely analogous and equivalent to the conversion of atricephalus into melanocephalus. Melanocephalus is not an emendation of the old name; it is a new name. So Diurus is not an emendation of Biurus; it is a new name.

I hold it to be incorrect to cite it as Diurus of Motschulsky. It is the Diurus of the 'Catalogus Coleopterorum,' dating only from 1869. So Ditoma, substituted by Illiger for the Bitoma of Herbst, is incorrectly cited as Ditoma of Herbst. It is the Ditoma of Illiger, and takes priority from 1806, and not from 1793.

If (as for the present argument is assumed) hybrid names are not to be retained, I repeat that the proper treatment of such names is to reject them altogether. And such is the practice, at least with specific names. For where the oldest specific name is a hybrid, it is not attempted to make the name either wholly Greek or wholly Latin, but the mongrel is cast out, and the next oldest name is taken in its stead.

If Diurus had not been already in use, it would of course have been open to Gemminger and Harold, when discarding Biurus, to adopt Diurus as a new name for the Telephorid genus. But in selecting a new name, they were bound to select one that was not pre-occupied. When re-naming the genus in 1869, they were debarred from taking a name applied to another genus in 1862.

In truth I suspect that when they changed Biurus into Diurus they had forgotten the existence of Dejean's genus. Lacordaire (Gen. des Coléop. iv. 368) remarks of Biurus "nom hybride, et qui dans sa forme regulière (Diurus) a dejà été employé pour des Curculionides;" whence I infer that in 1857 the Professor held the pre-occupation of Diurus was a bar to the alteration introduced by Gemminger and Harold in 1869.

The answer to Mr. Pascoe's question, in my opinion, clearly is, that the name Diurus properly belongs to the genus of Brenthidæ; that the alteration of Biurus in 1869 does not relate back to 1852 so as to oust the Diurus of 1862; and if Biurus is not retained, some unoccupied name must be found for the genus of Telephoridæ.

In conclusion, I beg to present the advocates of priority-at-any-price with the following fact. The type-species of Diurus was originally published (by a misprint) under the specific name turcillatus (Schönh. Curc. i. 359). It is true the error was corrected seven years later (Schönh. Curc. v. 510); but of course that goes for nothing, and an intelligent posterity is expected to acquiesce in the perpetuation of *Diurus turcillatus!* to welcome this typographo-diabolical Turklet, and immortalize this two-tailed bashaw!—*J. W. D.*

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FOR

1869.

Compiled by EDWARD NEWMAN.

CONTENTS.

OBITUARY NOTICE of Mr. Walsh, the Editor of the 'American Entomologist.'

SUMMARY OF CAPTURES.—*Argynnis Niobe*, Argynnis Lathonia, Vanessa Antiopa, Chelonia Hera, Deiopeia pulchella, Aplasta ononaria, Sterrha sacraria, *Xylophasia Zollikoferi* (with a figure), *Leucania L-album*, Leucania extranea, Leucania vitellina, Hydrilla palustris, Hadena assimilis, Xylina conformis, Margarodes unionalis, Scopula fulvalis, Lemiodes pulveralis, Eromene ocellea, *Hypermæcia augustana*, *Dicrorampha plumbana*, *Epichnopteryx betulina*, *Depressaria cnicella*, *Gelechia muscosella*, *Cemiostoma Orobi*, *Nepticula minusculella*, *Oxyptilus Teucrii*, *Tenthredo Alni*, *Colletes cunicularia*, *Halictus atricornis*, *Acridium peregrinum*, Pachytelus migratorius.

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⁂ In this Table of Contents the novelties are printed in *Italics*, in the text they are printed in SMALL CAPITALS.

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CONTENTS.

Bird-haunts of the Outer Hebrides, *Theodore C. Walker*, 2073.

Ornithological Notes from North Lincolnshire, *John Cordeaux*, 2077.

Extracts from a Memoir intituled 'A Monograph of the Alcidæ,' 2081.

The Nest of the Alligator, *Capt. H. W. Feilden*, 2090.

Snake Poison, 2092.

Natural History Notes from Minas Geraes, &c., *Henry Rogers*, 2094.

BIRDS.—Ornithological Notes from South Devon, *Baron A. de Hügel*, 2098. Varieties of Birds, *H. Blake-Knox, J.P.*, 2099. Early Nest of Longeared Owl; Pied Blackbird, *H. F. Battersby*, 2099. Ruticilla tithys and R. Carii, *H. Blake-Knox*, 2100. Early Appearance of the Wheatear, *John Gatcombe*, 2100. Early Whinchats, *Edward Sweetapple*, 2100. Wagtail in pure White Plumage, *J. W. Harris*, 2100. Anthus ludovicianus *vel* Anthus rufescens? *C. R. Bree, M.D.*, 2100. Buff Variety of Sky Lark, *T. E. Gunn*, 2101. Shore Lark near Weymouth, *William Borrer*, 2101. Shore Larks in East Yorkshire, *F. Boyes*, 2101. Shore Larks near Dunbar, *R. G. Wardlaw Ramsay*, 2101. Rock Doves at Salisbury, *Henry Blackmore*, 2101. The Case of Bustards at Swaffham, *Edward J. Moor*, 2101. The Scarborough Bustard's Egg, *H. W. Feilden*, 2102. Great Bustards on the Yorkshire Wolds, *Alwin S. Bell*, 2103. Ruff in Somersetshire, *Cecil Smith*, 2103. Ruff in Norfolk, *T. E. Gunn*, 2103. Sabine's Snipe, 2103. The Moa or Dinornis as Human Food, 2104. Sir George Grey on the Date of the Extinction of the Moa, 2104. Green Sandpiper at Hasketon, *E. C. Moor*, 2105. Spurwinged Goose in Wiltshire, 2105. Ruddy Shieldrake near Tralee, County Kerry, *H. Blake-Knox*, 2105. Smew at Yarmouth, *T. E. Gunn*, 2106. Rare Grebes in Devonshire, *J. Gatcombe*, 2106. Rednecked Grebe at Teignmouth, *Cecil Smith*, 2106. Sclavonian Grebe on the Wandle, *A. H. Smee*, 2106. Sclavonian Grebe at Taunton, *William J. Chalk*, 2106. Redthroated diver on the Devonshire Coast, *J. Gatcombe*, 2107. Blackthroated Diver and Redbreasted Merganser on the Thames, *A. H. Smee*, 2107. Puffin on the Dublin Coast in February, *H. Blake-Knox*, 2107. Avocet and Little Auk at Rye; Little Gulls on the Yorkshire Coast, *Alwin S. Bell*, 2107. Little Gulls at Bridlington Bay, 2107. Abundance of the Little Gull on the Norfolk Coast, *T. E. Gunn*, 2107. Little Gull in the City, *Frederick Bond, F.L.S.*, 2108. Kittiwake Gull, *Edward R. Alston*, 2108. Wild-fowl at Hastings, *Alwin S. Bell*, 2108.

FISHES.—Gilthead at Penzance, *Thomas Cornish*, 2108. Musical Fish, 2109.

Proceedings of the Entomological Society, 2109.

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